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EXAMINER	
HUNTSINGER, PETER K	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/855,943	MIYAZAKI, TAKAO	
	Examiner	Art Unit	
	Peter K. Huntsinger	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/12/06 has been entered.

Claim Objections

2. Claim 8 is objected to because of the following informalities: On page 5, line 2, it should state "said first density measuring means". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6, 11, 12, 27, 28, 31, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al. Patent 6,547,361.

Referring to claim 1, Suzuki et al. disclose a serial printing method for recording an image on a recording material one line by one line, said line including one or more rows and said line being recorded by moving a recording head in a width direction of said recording material, said serial printing method comprising the steps of: recording said row with said recording head on said recording material (S161 of Fig. 32, col. 24, lines 16-22); detecting whether or not a print defect occurs on said recorded row on said recording material (S162 of Fig. 32, col. 24, lines 16-22); and performing correction recording, on said recording material, relative to said row on which said print defect occurs (S171 of Fig. 32, col. 24, lines 29-44).

Referring to claim 2, Suzuki et al. disclose wherein said line includes a plurality of said rows respectively recorded with recording elements of said recording head (col. 24, lines 29-44).

Referring to claim 3, Suzuki et al. disclose wherein said print defect of said row is detected by measuring a density of each pixel constituting said row, and said correction recording is performed relative to said pixel on which a lack of density occurs (col. 19, lines 8-18).

Referring to claim 6, Suzuki et al. disclose wherein said recording head is an ink-jet recording head for recording said image by jetting ink to said recording material (col. 5-6, lines 63-67, 1-3).

Referring to claim 11, Suzuki et al. disclose a serial printing method for recording an image on a recording material one line by one line, said line including a plurality of rows of which recording is performed by moving a recording head in a sub-scanning

direction which is a width direction of said recording material, and said recording head having a plurality of recording elements arranged in a main-scanning direction perpendicular to said sub-scanning direction, said serial printing method comprising the steps of: recording said rows with said recording head (S161 of Fig. 32, col. 24, lines 16-22); detecting the broken recording element among said recording elements, said broken recording element being impossible to record due to its failure (col. 4, lines 7-10); and recording said row to be recorded with said broken recording element, by moving said recording head again and by using another normal recording element among said recording elements (S171 of Fig. 32, col. 24, lines 29-44).

Referring to claim 12, Suzuki et al. disclose wherein said broken recording element is detected by measuring a density of said row (col. 9, lines 8-18).

Referring to claim 27, Suzuki et al. disclose wherein both recording the image and correction recording are performed on said recording material where the print defect was detected (col. 24, lines 29-44).

Referring to claim 28, Suzuki et al. disclose wherein said print defect is both detected and corrected on said recording material having the lack of pixel density (col. 24, lines 29-44).

Referring to claim 31, Suzuki et al. disclose wherein the row to be recorded with the broken recording element is on said recording material, and wherein the recording head records again with a normal element on said recording material (col. 24, lines 29-44).

Referring to claim 36, Suzuki et al. disclose wherein recording said row, detecting a print defect on said recorded row, and performing correction recording on said row occur during a same recording operation (col. 24, lines 29-44).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361 as applied to claim 1 above, and further in view of Aosaki et al. Patent 5,467,198

Referring to claim 4, Suzuki et al. disclose a recording material and a recording head but do not disclose expressly utilizing thermosensitive recording paper. Aosaki et al. disclose wherein said recording material is a thermosensitive recording paper including a thermosensitive coloring layer, and said recording head is a thermal head for recording said image by heating said thermosensitive coloring layer (col. 7, lines 46-53). Suzuki et al. and Aosaki et al. are combinable because they are from the same field of printing systems. At the time of the invention, it would have been obvious to utilize thermosensitive recording paper and a thermal head. The motivation for doing so would have been to reduce the size of the printer. Suzuki et al. disclose a generic printer, but doesn't provide details of the printer, and Aosaki et al. simply provides the standard

details. Therefore, it would have been obvious to combine Aosaki et al. with Suzuki et al. to obtain the invention as specified in claim 4.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361 as applied to claim 1 above, and further in view of Saito Patent 4,561,789.

Referring to claim 5, Suzuki et al. disclose a recording material and a recording head but do not state utilizing thermally melted ink. Saito discloses wherein said recording head is a thermal head for heating an ink ribbon from its back side, said image being recorded by transferring one of thermally melted ink and thermally sublimated ink onto a surface of said recording material (col. 3, lines 12-17). Suzuki et al. and Saito are combinable because they are from the same field of printing systems. At the time of the invention, it would have been obvious to utilize the thermally melted ink of Saito with the printing system of Suzuki et al.. The motivation for doing so would have been to reduce the printing noise. Suzuki et al. discloses a generic thermal printer, but doesn't provide details of the printer, and Saito simply provides the standard details. Therefore, it would have been obvious to combine Saito with Suzuki et al. to obtain the invention as specified in claim 5.

8. Claims 7-10, 29, 30, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361, and further in view of Noyes et al Patent 6,775,022.

Referring to claim 7, Suzuki et al. disclose a serial printer including a carriage and a recording head held thereby, said carriage being reciprocated in a sub-scanning direction which is a width direction of a recording material, and said recording head recording a predetermined number of rows on said recording material in accordance with image data during the forward movement of said carriage, said serial printer comprising: density measuring means attached to said carriage and for obtaining a measured density of a recorded portion when said carriage is moved (col. 24, lines 16-22); density predicting means for obtaining a predicted density to be recorded on said portion, based on said image data (col. 19, lines 8-18); operation means for comparing said measured density with said predicted density every portion, said operation means obtaining density difference when said measured density is less than said predicted density; record correcting means for performing correction recording relative to the defective portion having said density difference, said record correcting means reciprocating said carriage again for the defective portion and driving said recording head in accordance with said density difference during the forward movement of said carriage (col. 24, lines 16-22); and recording-material advancement means for advancing a sheet of said recording material in a main-scanning direction perpendicular to said sub-scanning direction, in order to record the next predetermined number of the rows on said recording material (col. 24, lines 50-52), wherein on the same sheet of the recording material, detection of the density difference and correction recording relative to the defective portion having said density difference are performed. Suzuki et al. do not disclose expressly the density measuring means measuring density when moved

backwards. Noyes et al. disclose a carriage capable of measuring density while moving backwards (col. 86, lines 30-34). Suzuki et al. and Noyes et al. are combinable because they are in the same field of printing systems. At the time of the invention it would have been obvious to allow the density to be measuring while the carriage is moving backward. The motivation for doing so would be to allow the printer to utilize only one density measuring means if needed. Therefore, it would have been obvious to combine Noyes et al. with Suzuki et al. to combine the invention as specified in claim 7.

Referring to claim 8, Suzuki et al. disclose a serial printer including a carriage and a recording head held thereby, said carriage being reciprocated in a sub-scanning direction which is a width direction of a recording material, and said recording head recording a predetermined number of rows on said recording material in accordance with image data during the reciprocation of said carriage, said serial printer comprising: first density measuring means disposed on one side of said recording head in said sub-scanning direction, said first density measuring means obtaining a measured density of a recorded portion just after recording when said carriage is moved forward (col. 19, lines 8-18); density predicting means for obtaining a predicted density to be recorded on said portion, based on said image data (col. 19, lines 8-18); operation means for comparing said measured density with said predicted density every portion, said operation means obtaining density difference when said measured density is less than said predicted density; record correcting means for performing correction recording relative to the defective portion having said density difference, said record correcting means reciprocating said carriage again for the defective portion and driving said

recording head in accordance with said density difference during the forward movement of said carriage (col. 24, lines 16-22); and recording-material advancement means for advancing a sheet of said recording material in a main-scanning direction perpendicular to said sub-scanning direction, in order to record the next predetermined number of the rows on said recording material (col. 24, lines 50-52), wherein on the same sheet of the recording material, detection of the density difference and correction recording relative to the defective portion having said density difference are performed. Suzuki et al. do not disclose expressly a second density measuring means for measuring density backwards. Noyes et al. disclose second density measuring means disposed on the other side of said recording head in said sub-scanning direction, said second density measuring means (photo sensor on 37a of Fig. 4, col. 16-17, lines 66-67, 1-2) and obtaining a measured density of a recorded portion just after recording when said carriage is moved backward (col. 86, lines 30-34). Suzuki et al. and Noyes et al. are combinable because they are in the same field of printing systems. At the time of the invention it would have been obvious to allow the density to be measuring while the carriage is moving backward. The motivation for doing so would be to allow the printer to utilize only one density measuring means if needed. Therefore, it would have been obvious to combine Noyes et al. with Suzuki et al. to combine the invention as specified in claim 8.

Referring to claim 9, Suzuki et al. disclose wherein said density measuring means includes a light emitting element for illuminating said recorded portion, and a

light receiving element for converting the reflected light into an electric signal (col. 21-22, lines 60-67, 1).

Referring to claim 10, Suzuki et al. disclose wherein said portion is a single pixel (col. 13, lines 44-45).

Referring to claim 29, Suzuki et al. disclose wherein said operation means obtains the density difference on said recording material, and wherein the record correcting means corrects said density difference on said recording material (col. 24, lines 29-44).

Referring to claim 30, Suzuki et al. disclose wherein the density difference for the defective portion is measured on said recording material, and wherein correction recording for the defective portion is performed on said recording material (col. 24, lines 29-44).

Referring to claim 37, Suzuki et al. disclose wherein obtaining a measured density of a recorded portion, obtaining a predicted density to be recorded on said portion, comparing said measured density with said predicted density every portion, and performing correction recording to the defective portion occur during a same recording operation (col. 24, lines 29-44).

9. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361 as applied to claim 11 above, and further in view of Tanaka et al. Patent 6,123,341.

Referring to claim 13, Suzuki et al. disclose detecting a density by said recording head but do not disclose expressly measuring the density of a test pattern. Tanaka et al. disclose wherein a broken recording element is detected by measuring a density of a test pattern recorded by a recording head (Fig. 3, col. 9, lines 1-6). Suzuki et al. and Tanaka et al. are combinable because they are from the same field of detecting malfunctioning print heads. At the time of the invention, it would have obvious to a person of ordinary skill in the art to measure density in a test print. The motivation for doing so would have been to verify all nozzles in a print jet are functioning correctly. Therefore, it would have been obvious to combine Tanaka et al. with Suzuki et al. to obtain the invention as specified in claim 13.

Referring to claim 14, Tanaka et al. disclose wherein said test pattern is arranged at a lateral side of said row in said sub-scanning direction (Fig. 3, col. 9, lines 1-6).

Referring to claim 15, Tanaka et al. disclose wherein said test pattern is arranged at a downstream side of said row in said main-scanning direction (Fig. 3, col. 9, lines 1-6).

10. Claims 16-21, 28, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361, and further in view of Schantz Patent 5,124,720.

Referring to claim 16, Suzuki et al. disclose a serial printer including a carriage reciprocated in a sub-scanning direction which is a width direction of a recording material, a recording head held by said carriage, and moving means for moving said

recording material in a main-scanning direction perpendicular to said sub-scanning direction, said recording head having M (M is an integer of two or more) recording elements arranged in said main-scanning direction to record said M rows on said recording material during the movement of said carriage, said serial printer comprising: density measuring means attached to said carriage and for obtaining a measured density of said row recorded by said recording head (col. 19, lines 8-18); failure judging means for judging the row as the defective row when said measured density is less than a prescribed value, said failure judging means judging the corresponding recording element as the broken recording element (col. 4, lines 7-10); wherein, on a same sheet of the recording medium, the failure judging means judges the defective row and the control means controls the recording element to record (S171 of Fig. 32, col. 24, lines 29-44). Suzuki et al. do not disclose expressly moving said recording medium successively in accordance with a number of normal recording elements. Schantz discloses control means for controlling drive of said recording element, reciprocation of said carriage, and movement of said recording material, when all of said recording elements are normal (paper motion control device 24 of Fig. 1, col. 3, lines 59-64), said control means controlling the record under a condition that said recording element is moved every M rows (number of printing elements), and when said failure detecting means detects said broken recording element, said control means controlling the record such that said recording material is moved by at least one row in said main-scanning direction to record with the normal recording element relative to said defective row (col. 3, lines 24-34), and successively the record being continued under a condition that said

recording material is moved, in said main-scanning direction, in accordance with a number of the normal recording elements (col. 5, lines 31-55). Suzuki et al. and Schantz are combinable because they are from the same field of detecting malfunctioning print heads. At the time of the invention, it would have obvious to a person of ordinary skill in the art to move a recording medium successively according to the number of working recording elements. The motivation for doing so would have been to improve the speed of printing utilizing only working printing elements . Therefore, it would have been obvious to combine Schantz with Suzuki et al. to obtain the invention as specified in claim 16.

Referring to claim 17, Schantz discloses wherein when a number of the consecutive normal recording elements is N (N is an integer more than one and less than M), recording is performed with the consecutive normal recording elements, the number of which is N, in a condition that said recording material is moved in said main-scanning direction every N rows (col. 5, lines 31-55).

Referring to claim 18, Suzuki et al. disclose wherein said density measuring means includes a light emitting element for illuminating said recorded row, and a light receiving element for converting the reflected light into an electric signal (col. 21-22, lines 60-67, 1).

Referring to claim 19, Suzuki et al. disclose a serial printer including a carriage reciprocated in a sub-scanning direction which is a width direction of a recording material, a recording head held by said carriage, and moving means for moving said recording material in a main-scanning direction perpendicular to said sub-scanning

direction, said recording head having M (M is an integer of two or more) recording elements arranged in said main-scanning direction to record said M rows on said recording material during the movement of said carriage, said serial printer comprising: density measuring means attached to said carriage and for obtaining a measured density of said row recorded by said recording head (col. 19, lines 8-18); failure judging means for judging the row as the defective row when said measured density is less than a prescribed value, said failure judging means judging the corresponding recording element as the broken recording element (col. 4, lines 7-10); wherein, on a same sheet of the recording medium, the failure judging means judges the defective row and the control means controls the recording element to record (S171 of Fig. 32, col. 24, lines 29-44). Suzuki et al. do not disclose expressly moving said recording medium successively in accordance with a number of normal recording elements. Schantz discloses control means for controlling drive of said recording element, reciprocation of said carriage, and movement of said recording material, when all of said recording elements are normal (paper motion control device 24 of Fig. 1, col. 3, lines 59-64), said control means controlling the record under a condition that said recording element is moved every (M-J) rows (J is an integer less than M) to overlap the J rows, and when said failure detecting means detects said broken recording element, said control means controlling the record such that said recording material is moved by at least one row in said main-scanning direction to record with the normal recording element relative to said defective row, and successively the record being continued under a condition that said recording material is moved, in said main-scanning direction, in accordance with a

number of the normal recording elements (col. 5, lines 31 –55). Suzuki et al. and Schantz are combinable because they are from the same field of detecting malfunctioning print heads. At the time of the invention, it would have obvious to a person of ordinary skill in the art to move a recording medium successively according to the number of working recording elements. The motivation for doing so would have been to improve the speed of printing utilizing only working printing elements . Therefore, it would have been obvious to combine Schantz with Suzuki et al. to obtain the invention as specified in claim 19.

Referring to claim 20, Schantz discloses a serial printer according to claim 19, wherein when a number of the consecutive normal recording elements is N (N is an integer more than one and less than M), recording is performed with the consecutive normal recording elements, the number of which is N, in a condition that said recording material is moved in said main-scanning direction every (N-K) rows (K is an integer less than N) to overlap the K rows (col. 5, lines 31 –55).

Referring to claim 21, Suzuki et al. disclose wherein said density measuring means includes a light emitting element for illuminating said recorded row, and a light receiving element for converting the reflected light into an electric signal (col. 21-22, lines 60-67, 1).

Referring to claim 32, Schantz discloses wherein said number of normal recording elements is based on a number of consecutive normal recording elements (col. 5, lines 31-55).

11. Claims 22, 23, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361, and further in view of Yamaguchi et al. Patent 5,424,764.

Referring to claim 22, Suzuki et al. disclose a serial printing method for recording an image on a recording material one line by one line, said line including one or more rows and said line being recorded by moving a recording head of a printer in a width direction of said recording material, said serial printing method comprising the steps of: detecting whether or not a print defect occurs on said recorded row (S162 of Fig. 32, col. 24, lines 16-22); and performing correction recording relative to said row on which said print defect occurs (S171 of Fig. 32, col. 24, lines 29-44). Suzuki et al. do not disclose expressly discharging a recording material and rerecording on the discharged recording material. Yamaguchi et al. disclose discharging a recording material on which said image has been recorded, from said printer; setting said discharged recording material to said printer again (col. 2, lines 49-59). Suzuki et al. and Yamaguchi et al. are combinable because they are from the same field of printing systems. At the time of the invention, it would have obvious to a person of ordinary skill in the art to rerecord on a printed sheet. The motivation for doing so would have been to reduce the amount of wasted sheets. Therefore, it would have been obvious to combine Yamaguchi et al. with Suzuki et al. to obtain the invention as specified in claim 22.

Referring to claim 23, Suzuki et al. disclose wherein said print defect of said row is detected by measuring a density of said row (col. 19, lines 8-18).

Referring to claim 34, Suzuki et al. disclose wherein the image on a recording material contains a print defect, and wherein said correction recording corrects the image on said recording material (col. 24, lines 29-44). Yamaguchi et al. disclose discharging a recording material on which said image has been recorded, from said printer; setting said discharged recording material to said printer again (col. 2, lines 49-59).

12. Claims 24 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361, and further in view of Ui et al. Patent 6,340,984.

Referring to claim 24, Suzuki et al. disclose a serial printer including a carriage reciprocated in a sub-scanning direction which is a width direction of a recording material, a recording head held by said carriage, and moving means for moving said recording material in a main-scanning direction perpendicular to said sub-scanning direction, said recording head recording a predetermined number of rows on said recording material in accordance with image data during the reciprocation of said carriage, said serial printer comprising: image-area detecting means for obtaining positional information of an image area of said recording material already recorded col. (col. 24, lines 16-22); data making means for making correction image data by calculating positional difference between said positional information of said image area and positional information of said image data, said data making means moving said image data in accordance with said positional difference (col. 24, lines 29-44); density predicting means for obtaining a predicted density to be recorded on each portion of

said image data, based on said correction image data (col. 19, lines 8-18); density measuring means attached to said carriage and for obtaining a measured density of said portion of said image area during the movement of said carriage (col. 24, lines 16-22); operation means for comparing said measured density with said predicted density every portion, said operation means obtaining density difference of the defective portion have said measured density which is less than said predicted density; record correcting means for performing correction recording relative to the defective portion having said density difference, said record correcting means moving said carriage again for the defective portion and driving said recording head in accordance with said density difference during the movement of said carriage (col. 24, lines 16-22), wherein on the same sheet of said recording material, the operation means obtains the density difference of the defective portion and the record correcting means performs correction recording. Suzuki et al. do not disclose expressly calculating an inclination of the recording sheet. Ui et al. disclose calculating an inclination and inclining image data in accordance with said inclination (col. 7-8, lines 55-67, 1-12). Suzuki et al. and Ui et al. are combinable because they are from the same field of printing systems. At the time of the invention it would have been obvious to correct inclination of a printed page. The motivation for doing so would have been to eliminate printing pages that are printed on an undesired angle. Therefore, it would have been obvious to combine Ui et al. with Suzuki et al. to obtain the invention as specified in claim 24.

Referring to claim 35, Suzuki et al. disclose measuring the positional difference between the image area and the image data but do not disclose expressly basing the

positional data on a slanted insertion of the recording material. Ui et al. disclose wherein the recording material having the image area is slanted when inserted in the serial printer, and inclination is determined (col. 4, lines 28-46). Suzuki et al. and Ui et al. are combinable because they are from the same field of printing systems. At the time of the invention it would have been obvious to base the positional difference on the inclination of the sheet. The motivation for doing so would have been to eliminate the error that would occur if the measured positional difference were based on a slanted sheet. Therefore, it would have been obvious to combine Ui et al. with Suzuki et al. to obtain the invention as specified in claim 35.

13. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. Patent 6,547,361 and Ui et al. Patent 6,340,984 as applied to claim 24 above, and further in view of Noyes et al. Patent 6,297,888.

Referring to claim 25, Suzuki et al. disclose measuring means, but do not disclose expressly measuring a border. Noyes et al. disclose wherein said image-area detecting means detects a border line between said image area and its surrounding portion by using said density measuring means to detect said image area, under a condition of moving said carriage and moving said recording material by said moving means (col. 15, lines 38-40). Suzuki et al. and Noyes et al. are combinable because they are from the same field of printing systems. At the time of the invention it would have been obvious to measure a border with density measuring means. The motivation for doing so would have been to reduce the inaccuracy in printing alignment patterns.

Therefore, it would have been obvious to combine Noyes et al. with Suzuki et al. and Ui et al. to obtain the invention as specified in claim 25.

Referring to claim 26, Suzuki et al. disclose wherein said density measuring means includes a light emitting element for illuminating said recorded portion, and a light receiving element for converting the reflected light into an electric signal (col. 21-22, lines 60-67, 1).

14. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. and Schantz Patent 5,124,720 as applied to claim 20 above, and further in view of applicant's admitted prior art.

Referring to claim 33, Suzuki et al. disclose detecting a broken recording element but do not disclose expressly when the broken element is detected, a determination is made whether said broken element is for recording an end row of a line, and when said broken element records the end row of said line, recording is performed with fifty-percent density. Applicant's prior art teaches when the broken element is detected, a determination is made whether said broken element is for recording an end row of a line, and when said broken element records the end row of said line, recording is performed with fifty-percent density (page 38, lines 3-10). At the time of the invention it would have been obvious to detect the end of a row and record said row with fifty percent density. The motivation for doing so would have been to eliminate the streak that occurs between adjacent lines. Therefore, it would have been obvious to combine

the applicant's admitted prior art with Suzuki et al. and Schantz to obtain the invention as specified in claim 33.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter K. Huntsinger whose telephone number is (571)272-7435. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (571)272-7471. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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